

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

1. (canceled)
2. (currently amended) The touch sensor of claim 10 ~~1~~, wherein the diffractive grating comprises an array of parallel elements.
3. (original) The touch sensor of claim 0, wherein the elements have a pitch equal to the wavelength of the acoustic wave.
4. (currently amended) The touch sensor of claim 10 ~~1~~, wherein the diffractive grating is structurally distinct from the transducer and substrate.
5. (currently amended) The touch sensor of claim 10 ~~1~~, wherein the diffractive grating is structurally integrated with the substrate.
6. (currently amended) The touch sensor of claim 10 ~~1~~, wherein the diffractive grating is structurally integrated with the transducer.
7. (currently amended) The touch sensor of claim 10 ~~1~~, further comprising:

another acoustic transducer; and

another acoustically diffractive grating disposed between the substrate and the other transducer, the other diffractive grating coupling acoustic energy within the other acoustic transducer to the acoustic wave.
8. (currently amended) The touch sensor of claim 10 ~~1~~, wherein the substrate surface is substantially flat.
9. (currently amended) The touch sensor of claim 10 ~~1~~, wherein the transducer comprises a piezoelectric element.
10. (currently amended) A ~~The~~ touch sensor comprising: of claim 0,

an acoustic substrate having a surface;

an acoustic transducer; and

an acoustically diffractive grating disposed between the substrate and the transducer, the diffractive grating (a) coupling acoustic energy within the acoustic transducer to an acoustic wave propagating along the surface of the substrate, and (b) comprising wherein the grating comprises alternating tines and slots, and wherein the coupling between the transducer and the substrate through the tines being is approximately 180 degrees out of phase with the coupling between the transducer and the substrate through the slots.

11. (canceled)

12. (currently amended) The touch display of claim 20 ~~11~~, wherein the diffractive grating comprises an array of parallel elements.

13. (currently amended) The touch display of claim 20 ~~11~~, wherein the elements are spaced from each other a distance equal to the wavelength of the acoustic wave.

14. (currently amended) The touch display of claim 20 ~~11~~, wherein the diffractive grating is structurally distinct from the transducer and substrate.

15. (currently amended) The touch display of claim 20 ~~11~~, wherein the diffractive grating is formed structurally integrated with the substrate.

16. (currently amended) The touch display of claim 20 ~~11~~, wherein the diffractive grating is structurally integrated with the transducer.

17. (currently amended) The touch display of claim 20 ~~11~~, further comprising:
another acoustic transducer; and
another acoustically diffractive grating disposed between the substrate and the other transducer, the other diffractive grating coupling acoustic energy within the other acoustic transducer to the acoustic wave.

18. (currently amended) The touch display of claim 20 ~~11~~, wherein the substrate surface is substantially flat.

19. (currently amended) The touch display of claim 20 ~~11~~, wherein the transducer comprises a piezoelectric element.

20. (currently amended) A ~~The~~ touch display, comprising: of claim 11,

a display device;

a transparent acoustic substrate having a surface, the substrate forming a front surface of the display device;

an acoustic transducer; and

an acoustically diffractive grating disposed between the substrate and the transducer, the diffractive grating (a) coupling acoustic energy within the acoustic transducer to an acoustic wave propagating along the surface of the substrate, and (b) comprising wherein the grating comprises alternating tines and slots, and wherein the coupling between the transducer and the substrate through the tines being is approximately 180 degrees out of phase with the coupling between the transducer and the substrate through the slots.

21. (new) The touch sensor of claim 10, wherein the diffractive grating comprises a metal foil.

22. (new) The touch sensor of claim 10, wherein the slots are filled with an epoxy or low acoustic velocity material.